

Tall Whitetop (*Lepidium latifolium*)

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Background

The Weed Science Society of America has designated perennial pepperweed as the official common name for *Lepidium latifolium* L. In the San Luis Valley of Colorado, nearly everyone refers to the plant as ironweed. Throughout much of the western United States the plant is known as tall whitetop. Unfortunately, another weed commonly called “whitetop” is widely distributed on rangelands. The scientific name of this whitetop is *Cardaria draba* [L.] Desv. and the accepted common name is hoary cress. This may seem confusing, but it results in a communication rather than an identification problem. If correspondence arrives reporting a “whitetop” problem at a field location, it is necessary to determine the exact species that is being referred to as the problem. In the field, it is generally easy to distinguish between *Lepidium latifolium* and *Cardaria draba*.

Both weeds known as whitetop are members of the Brassicaceae, or mustard, family. They both have the typical, four-parted mustard flower with white petals. Both species have vigorous creeping roots. These roots have buds that can produce either shoots or roots, and both species form colonies. With all these shared characteristics it would seem that tall whitetop and whitetop

are difficult to distinguish. The adjective “tall” is the key. Whitetop (hoary cress) can color entire meadows with a dazzling display of white flowers, but a month later the leaves dry on the fragile 1- to 1.5-foot-tall stems and the plants virtually disappear. Tall whitetop (perennial pepperweed) plants can easily reach heights of 6 feet or more and the stems are semiwoody at the base. Tall whitetop forms thickets that are visible all seasons of the year and the dead plant material persists for several years (Figure).

Monoculture can be an overused term in describing weed infestations, but tall whitetop infestations come very close to actual monocultures. The mass of creeping roots send up numerous shoots that form a closed canopy. Tall whitetop out-competes other vegetation for light, nutrients, and moisture. Tall whitetop infestations are closed to the recruitment of seedlings of other perennial species without substantial weed control treatments. Tall whitetop is native to eastern Europe and adjacent Asia. It is a fairly recent accidental

introduction to North America and is presently found in all western States. It is a major weed in tidal marshes of San Francisco Bay and at an elevation of 7,500 feet in southern Colorado. Tall whitetop is highly adapted to saline-alkaline soils, but is not restricted to such soils. It is widely distributed in meadows of the Lake Tahoe Basin of California and Nevada, growing on neutral to acid soils. Tall whitetop is highly adapted to riparian and meadow ecosystems. It becomes distributed along irrigation and drainage ditches from which it invades agronomic fields. It is also a serious pest in alfalfa fields. Tall whitetop is a noxious weed in most western States. Despite its affinity for riparian and wetland environments, the weed has established roadside colonies in the Great Basin in salt desert environments in the 4- to 6-inch annual precipitation zone.

Discussion

Mechanical control of tall whitetop through tillage is not a valid weed control option because virtually every cut section of root will produce new plants. Grazing



Figure. Tall whitetop (*Lepidium latifolium* L.) infestation is present along the Trukee River in northwestern Nevada.



management can be used to suppress the dominance of tall white-top, but only before the weed has gained complete dominance of the site. Grazing animals do not prefer the herbage of tall whitetop—especially after the flower stalks have begun to elongate. A stocking rate that is sufficiently high to produce utilization of tall white-top means that virtually every desirable plant in the community is excessively utilized. Goats can be forced to completely consume tall whitetop plants before flowering stalk elongation occurs, but this extreme level of utilization has no lasting weed control influence. These extreme grazing treatments do not enhance the efficacy of subsequent herbicide applications.

Presently, the only option for the control of tall whitetop is the repeated use of herbicides in conjunction with seeding perennial grasses. Annually, repeated applications of an amine form of

2,4-dichlorophenoxyacetic acid (2,4-D) at the rate of 2 pounds of the active ingredient per acre will sufficiently suppress tall white-top to allow the establishment of seedlings of perennial grasses. In the seedling year of the perennial grasses, 0.5 pounds per acre of 2,4-D can be applied over the grass seedlings after they reach the first true leaf stage of growth. On highly saline-alkaline soils in the Intermountain Area, tall wheatgrass (*Elytrigia elongata*) is the only perennial that will establish on the sites. After the tall whitetop is suppressed by the combination of 2,4-D applications and the perennial grass establishment, tillage can be used to reduce the grass and establish adapted native shrubs, grasses, and broadleaf species.

Herbicides in the chemical family sulfonyleurea are extremely effective for the control of tall whitetop, but they leave residues in alkaline soils that can inhibit the establishment

of perennial grasses for as long as several years, depending on soil type and precipitation site. Sold under various trade names, these herbicides will kill tall whitetop but will also leave herbicide residues.

Conclusion

Tall whitetop is an exotic, highly invasive perennial weed. It causes great ecological damage to riparian and wetland habitats. This weed can be suppressed by repeated applications of the herbicide 2,4-D in conjunction with establishing good stands of perennial grasses.

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